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United States
Environmental Protection Agency
Region X (M/S 605)
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Seattle, WA 98101

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DEPARTMENT OF ECOLOGY
NORTHWEST REGIONAL OFFICE

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News Release

83-54

Contact: Bob Jacobson

(206) 442-1203

August 3, 1983

FOR IMMEDIATE RELEASE

Three public workshops will be held this month by the U.S. Environmental Protection Agency to inform citizens and answer their questions about the proposed Federal standards to reduce emissions of inorganic arsenic from the ASARCO copper smelter in Ruston, Washington.

The workshop schedule:

Wednesday August 10	Tuesday August 16	Thursday August 18
Time: 7 - 10 p.m.	7 - 10 p.m.	7 - 10 p.m.
Place: McMurray Interm. School S.W. 196th Street Vashon	Wilson High School 1202 N. Orchard Tacoma	Wilson High School 1202 N. Orchard Tacoma

(more)

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These public workshops are designed to provide information on the impacts of the proposal on the community and to provide a forum for concerned citizens to discuss issues related to the proposal.

Ernesta B. Barnes, EPA's Northwest Regional Administrator, will moderate each of the workshops.

"The workshops are designed to describe the proposal of the arsenic standards and the information upon which it was based," Barnes said. "We also hope to get the views of an informed public and use this information when the Agency makes a final decision on the proposed standard.

"The workshops will be structured to allow plenty of time for questions. We'll be answering all those questions and will be forthright in giving all available information to people who want to make a contribution to the Administrator's final decision by giving their comments in writing or orally."

The opportunity for the public to give EPA oral testimony is scheduled from noon to 10 pm, Tuesday, August 30, in the Rotunda Room of the Tacoma Bicentennial Pavilion at 1313 Market Street. A second day of hearings will be held if necessary, at the same location on the next day.

A principal issue Barnes expects to be raised at the public workshops and public hearing is whether the arsenic controls proposed by EPA will provide the legally required "ample margin of safety" to protect public health. EPA has acknowledged that its proposed controls will substantially reduce the risks to public health but will not eliminate them.

"It is assumed by EPA that any exposure to inorganic arsenic by inhalation--regardless of the amount of the exposure--would result in a risk of lung cancer," Barnes said. "Even with the controls EPA has proposed, it is estimated that ASARCO will continue to release 189 tons of arsenic emissions to the atmosphere per year, with the result that there would still be some risk of lung cancer, although a lower risk than without controls."

People who want to familiarize themselves with the EPA proposal and EPA's estimates of health risks associated with ASARCO's arsenic emissions may obtain summaries prepared by EPA at these locations after August 10:

- Swasey, Mottet, Fern Hill, South Tacoma, Moore, McCormick, Kobetich, Municipal Reference and Main Branches of Tacoma Public Library
- Library, University of Puget Sound
- Lakewood and Peninsula Branches of the Pierce County Library
- Vashon Island Branch, King County Library
- Washington State Library, Olympia
- EPA Office of Public Affairs, 12th Floor, 1200 Sixth Avenue, Seattle.

Copies of the summaries will also be available at the three workshops. For additional copies of the fact sheets, or to make arrangements to see documents from which they are derived, please write Dee Ann Kirkpatrick at EPA (Mail Stop 541), 1200 Sixth Avenue, Seattle, Washington, 98101, or call her at 442-1200.

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U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101



REPLY TO
ATTN OF: M/S 601

August 8, 1983

As you know, the U. S. Environmental Protection Agency is charged under the Clean Air Act to set national emission standards for hazardous air pollutants which will provide "an ample margin of safety to protect the public health." This mandate includes setting standards for the control of arsenic, a substance known to cause cancer in people. The Clean Air Act does not define what the margin of safety should be but entrusts this decision to the Administrator of EPA, William D. Ruckelshaus, who will publish a final standard for arsenic next year.

The attached fact sheet, "The Risk to Public Health," will help to acquaint people with the health risks associated with arsenic emissions, particularly from ASARCO and will help them to recognize that the health risks have not been (and may never be) precisely quantified. Two other fact sheets "Arsenic Controls" and "Superfund and ASARCO" are also enclosed. They explain what the controls proposed by EPA are intended to achieve, what the actual costs to ASARCO will be, and how the proposed controls relate to EPA's concern about long-term arsenic deposits in the soil.

Public workshops are being held August 10, 16, and 18 to provide a forum for answering questions about the proposed standards. A public hearing will be held in Tacoma on August 30 for those individuals who wish to make an oral statement on the arsenic proposal.

The enclosed fact sheets are available to all citizens interested in this standard-setting process. For additional copies of the fact sheets, or to make arrangements to see documents from which they are derived, please write Dee Ann Kirkpatrick at EPA (Mail Stop 541), 1200 Sixth Avenue, Seattle, Washington, 98101, or call her at 442-1200.

Sincerely,

Anita Frankel, Director
Office of Public Affairs

Enclosures

A FACT SHEET ARSENIC CONTROLS

WHY THE SPECIAL ATTENTION FOR ASARCO'S TACOMA SMELTER?

The ASARCO smelter in Tacoma uses copper ore concentrate with a much higher arsenic content than any other U.S. copper smelter. Arsenic makes up about four percent of the ore at Tacoma; no other copper smelter uses ore concentrate with more than 0.6 percent.

Arsenic is a commercially valuable by-product of the Tacoma operation. The smelter is the only U.S. manufacturer of arsenic and arsenic trioxide; it produces one-third of all arsenic used in the country.

WHAT IS EPA PROPOSING FOR THE TACOMA SMELTER?

There are three principal phases in the smelting process that transforms raw ore into blister copper. (1) The ore is first run through a roaster as an initial step in gradually removing impurities. (2) What emerges from the roaster is run through a reverberatory furnace. (3) The molten mixture from the furnace is then sent to converters. EPA seeks to reduce the emissions of arsenic that escape capture in the third step, e.g., the converting process.

EPA is proposing that additional hoods be placed on the converters so that ASARCO would capture and collect "fugitive" arsenic given off during this third stage in removing impurities from the copper.

The EPA proposal would include a standard expressed in terms of equipment specifications for the collection device. The criterion used by EPA in designing this standard is what is called the "Best Available Technology", or BAT. BAT means the best controls available considering economic, energy, and environmental impacts. BAT is the minimum level of control which EPA would require for hazardous air pollutants such as arsenic.

IS THE PROPOSED "BEST AVAILABLE TECHNOLOGY" INDEED THE BEST ASARCO CAN DO?

One of the chief issues during the public hearing/public comment process is whether EPA's proposed standard does, in fact, represent the very best control technology available to ASARCO. Are there other operations or practices at the smelter where additional control can be employed to reduce emissions of arsenic?

There have been discussions among air pollution control engineers involved in the ASARCO-arsenic issue that other measures may exist which can be applied to produce even greater reductions in ASARCO's arsenic emissions. One example which has been suggested has been baghouse controls on the reverberatory furnaces which may play a major role in reducing the amount of arsenic which now escapes.

Other suggestions have been made that ASARCO may be able to reduce fugitive emissions throughout the smelter and that consideration be given to require ASARCO to use ore concentrate with a lower arsenic content. The feasibility of such requirements and the quantification of emission reduction and cost is the subject of an ongoing EPA task force effort. Comments from the public are encouraged and welcomed.

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WHAT WOULD EPA'S PROPOSED CONTROLS COST ASARCO?

EPA has estimated that it would cost ASARCO \$3.5 million to install the hooding equipment required by the proposed controls, and that the annual cost to operate the equipment would be \$1.5 million. Operation of the equipment is expected to increase the smelter's annual energy consumption by one-half of one percent over the 2.9 billion kilowatt hours of electricity the smelter now uses each year. EPA has estimated that its proposed controls could result in an increase in the price of copper by approximately 0.8 percent if the company chose to maintain its normal profit margin. The cost may be higher if additional or alternative controls are found to be necessary.

IS SHUTDOWN OF THE SMELTER A POSSIBILITY?

Yes, it is a possibility.

Regulation of hazardous air pollutants such as arsenic is required by Section 112 of the Clean Air Act. The only absolutely safe approach to setting standards for substances which cause cancer would be to set a standard that would reduce the emissions to zero. In setting standards previously for two other cancer-causing air pollutants, asbestos and vinyl chlorides, EPA promulgated standards that did not require shutdown of facilities that released those pollutants to the ambient air.

EPA can impose standards that go beyond Best Available Technology if, in the language of the statute, it is necessary "to protect the public health....with an ample margin of safety."

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A FACT SHEET

SUPERFUND AND ASARCO

WHAT IS SUPERFUND?

Superfund is the Federal program that allows EPA -- with the participation of State governments -- to respond directly to releases (or threatened releases) of hazardous substances and pollutants or contaminants that may endanger public health or welfare. The program was set up by the Comprehensive Environmental Response, Compensation and Liability Act of 1980. The law is referred to as "CERCLA", or, more popularly, as the Superfund law because it created a \$1.6 billion fund to deal with problems resulting from hazardous materials in the environment.

HOW DOES SUPERFUND COME INTO PLAY?

In April 1983, the Washington Department of Ecology (DOE) signed an agreement with EPA that called for DOE to lead a \$1.4 million EPA-funded investigation of contamination by hazardous chemicals in an area described as the Commencement Bay Nearshore/Tideflats area. The area includes Ruston, site of the ASARCO smelter. A sum of \$100,000 will be devoted to investigate contamination in Ruston, Maury Island and Vashon Island. Soils in those vicinities are known to contain arsenic and cadmium in amounts that have prompted the Tacoma-Pierce County Health Department and the Seattle-King County Health Department to issue warnings about the consumption of garden vegetables grown in contaminated soils.

WHAT IS THE OBJECT OF THE SUPERFUND INVESTIGATION?

The investigation, to be managed by DOE and the Tacoma-Pierce County Health Department, will attempt to establish the pathways by which arsenic finds its way into the urine of school children. There are a number of suspected pathways: household dust, windblown dust from unpaved lots and roads, vegetable intake, playground soil and smelter emissions. DOE and the health department will attempt to determine the most significant pathways. According to the current schedule, the investigation should be completed by November 1984. Once the pathways are established, EPA has the authority to order the source of the contamination, if known, to take corrective action that will eliminate the risk to health. If a source of the contamination refused to undertake the clean-up, EPA has the legal authority to do the job itself with the understanding that all costs incurred must be repaid to EPA by the source.

WHAT IS SUPERFUND'S RELATIONSHIP TO THE PENDING EPA PROPOSAL?

The pending EPA proposal to place new restrictions on arsenic emissions from ASARCO is separate from the Superfund program, although the two have similar goals. The proposal has as its objective the reduction of arsenic from current and future smelter emissions. The Superfund program is directed toward reducing the health and environmental risks posed by the historic build-up of arsenic in the soil.

Until the joint DOE-health department Superfund investigations are completed, what should or can be done to remedy the historic deposit of arsenic in the soils will not be known. Any cleanup action, however, will be planned with the help of the public. An advisory group is being formed, and will begin meeting soon. For more information about the public's involvement with Superfund activities, contact Derek Sandison of the Tacoma-Pierce County Health Department at (206) 593-4750.

A FACT SHEET

THE RISK TO PUBLIC HEALTH

Arsenic, in its inorganic form, has long been known as an acute poison to humans when ingested in relatively large amounts. However, more recent data have shown that exposure to lower levels of arsenic results in skin and lung cancer in humans. For cancer-causing substances, such as inorganic arsenic, scientists are unable to identify a safe level of exposure. Therefore, EPA and other federal agencies have taken the position that cancer may occur at any level of exposure to arsenic no matter how low, with the risk of cancer increasing as exposure increases.

For the purpose of developing its arsenic regulation, EPA has determined that the ASARCO smelter should be controlled at a minimum to the level that reflects best available technology (BAT) and to a more stringent level if necessary to prevent health risks that are unreasonable. This approach requires that EPA estimate the cancer risk remaining for the population after these controls are in place and then determine if the remaining cancer risk is acceptable, taking into account the costs and technical feasibility of reducing the risk further.

To calculate this remaining risk, EPA combined data from two different types of analyses. The first analysis provides what is known as the unit risk number. This number is defined as the lifetime lung cancer risk that would occur in a population which is exposed throughout their lifetime to one microgram per cubic meter of arsenic in the air they breathe. (A microgram is equal to about 1/28 millionth of an ounce and a cubic meter is about the same as a cubic yard. Therefore, one microgram per cubic meter is about 1/28 millionth of an ounce of arsenic in a cubic yard of air.) This unit risk number is calculated by using data from studies of workers who were exposed to arsenic in smelters and at a pesticide manufacturing plant.

The second analysis estimates the exposure for residents living near the smelter. This is done with mathematical models. Utilizing data on emissions of arsenic from the ASARCO smelter as well as information on weather and geographic conditions, a dispersion model is used to calculate the concentration of arsenic expected at over one hundred locations within approximately 12 miles of the smelter. Combining these exposure estimates with population data from the Bureau of Census gives an estimate of the number of people exposed to various concentrations of arsenic within about 12 miles of the smelter. This 12 mile distance was chosen because the mathematical models used tend not to be as accurate at a greater distance. (While our analysis stops at about 12 miles, it must be realized that risk from exposure to arsenic emissions extends beyond this distance, though at a reduced level.)

By multiplying the unit risk number and the estimated exposure for people living around the smelter, it is possible to make an estimate of the cancer risks expected in the ASARCO community as a result of arsenic exposure. For those people living within one mile of the smelter, the lifetime cancer risk remaining after controls have been installed would be about 0.2%. This is in addition to the normal lifetime cancer risk of about 20% that would be expected without arsenic exposure. Within the 12 mile area this excess life-time cancer risk, after controls are installed, would be 0.004%. Another way of expressing this risk is by using lung cancer incidence numbers. Lung cancer incidence is the expected number of lung cancer cases that would result each year from arsenic exposure within 12 miles of the smelter. Without additional controls, the estimated lung cancer cases are approximately 4 per year. After the proposed controls were installed, the estimated number would drop to approximately one per year. To keep this in perspective, these numbers should be compared to the several hundred lung cancer deaths that are normally expected each year in a population the size of that found within this 12 mile radius.

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UNCERTAINTIES IN RISK CALCULATIONS

The process of calculating these risks for the population around the smelter involves many assumptions and uncertainties. So while these estimates of risk are a useful tool in the decision-making process, MUCH CAUTION SHOULD BE EXERCISED TO AVOID RELYING TOO HEAVILY ON THE NUMBERS PRESENTED ABOVE. These numbers have considerable uncertainty for the following reasons:

1) MODELING ASSUMPTIONS - Measurement of air concentration of arsenic around the ASARCO plant have not been done thoroughly; however, the measurements that have been obtained indicate lower concentrations than those predicted by the dispersion model. Arsenic emissions data from the smelter used in the dispersion model are not precise. In many cases these emission rates were based on assumptions rather than actual emission tests. This is especially true for fugitive emissions which are very important in calculating concentration yet are very difficult to measure. Also, estimates of how these arsenic emissions mix with the ambient air are hard to determine because of the complex geography and lack of specific weather data for the area around the smelter. These problems may explain why the ambient monitoring around the smelter shows lower concentrations of arsenic than EPA's dispersion model predicts.

2) EXPOSURE ASSUMPTIONS - A principal assumption is that all persons living within the 12 mile radius of the smelter will remain in the same location for a 70 year lifetime and are exposed to a constant, average concentration of airborne arsenic. This assumption could result in large overestimates of arsenic exposure for those who spend a lot of time away from their residences and in underestimates for workers employed at the smelter. Additionally, exposure to arsenic from resuspension of arsenic bearing dusts from city streets, empty lots, and playgrounds has not been taken into consideration.

3) UNIT RISK NUMBER - Because arsenic is a carcinogen, it was assumed that a linear relationship exists between exposure and risk. Simply stated, this means that a person who inhales one microgram of arsenic per cubic meter of air is one-tenth as likely to get cancer as a person who inhales ten micrograms per cubic meter. If the relationship between exposure and risk is not linear, a different unit risk number could result which would in turn change the lung cancer risk estimates made for the population around the smelter. It is unlikely that the actual cancer risks would be higher than those predicted by EPA, but they could be substantially lower.

EPA is now in the process of reviewing the data used in calculating risk estimates, especially those data which relate to arsenic emissions and dispersion modeling. If necessary, new data will be developed in these areas to permit EPA to better estimate risks to the smelter community.